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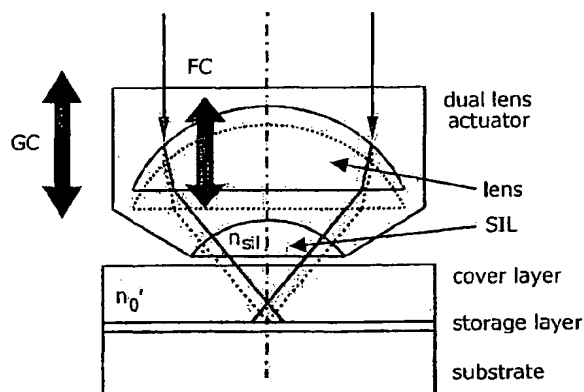
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(54) Title: **OPTICAL DATA STORAGE SYSTEM AND METHOD OF OPTICAL RECORDING AND/OR READING**

(57) **Abstract:** An optical data storage system for recording and/or reading, using a radiation beam, having a wavelength λ , focused onto a data storage layer of an optical data storage medium is described. The system comprises the medium having a cover layer that is transparent to the focused radiation beam, an optical head, including an objective having a numerical aperture NA, said objective including a solid immersion lens that is adapted for being present at a free working distance of smaller than $\lambda/10$ from an outermost surface of said medium. The optical head comprises a first adjustable optical element corresponding to the solid immersion lens, means for axially moving the first optical element and dynamically keeping constant the distance between cover layer and solid immersion lens, a second adjustable optical element, means for dynamically adjusting the second optical element for changing the focal position of the focal point of the focused radiation beam relative to an exit surface of the solid immersion lens. This achieves reliable read-out and writing during cover layer thickness variations. Further a method is described for controlling such a system.



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